Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of the claims in the application:

Listing of Claims:

Claim 1 (currently amended) A large optically switched communication network comprising:

(A) a plurality of more than 20 area code nodes;

(B) a network of optical fibers;

(C) a plurality of dense wavelength division multiplexing components for providing at least 100 wavelength communication channels through each optical fiber in said network of optical fibers;

(D) a plurality of processor controlled optical switches located at each of said area code nodes;

(E) a plurality of processors, said plurality of processors being programmed with a routing algorithm for controlling said optical switches to permit a plurality of single wavelength communication links through said network of optical fibers from each of said plurality of area code nodes to every other one of said area code nodes;

(F) at least one optical signal generator for generating a plurality of narrow band optical reference frequency ~~wavelength~~ signals and a plurality of optical subfrequency signals, said optical subfrequency signals defining each of said at least 100 wavelength communication channels ~~for use at each of the area code nodes~~;

(G) a plurality of narrowband tunable filters located at the area code nodes to isolate selected wavelength communication channels from other wavelength communication channels; and

(H) a plurality of electro-optical modulators to modulate user data onto said network of optical fibers at wavelengths within selected wavelength communication channels;

wherein each communication link ~~from one~~ in each of said communication channels from each area code node to ~~another~~ every other area code node within the network is routed without a change in wavelength and without optical-electrical optical conversion.

Claim 2 (previously presented) The network as in claim 1 wherein said at least 100 wavelength communication channels is at least 300 wavelength communication channels.

Claim 3 (cancelled)

Claim 4 (new) A large optically switched communication network as in Claim 1 wherein said routing algorithm is an algorithm adapted to utilize a requirements matrix and an allocation matrix in order to assign wavelength communication channels to avoid collisions.

Claim 5 (new) A large optically switched communication network as in Claim 1 wherein the routing algorithm utilizes mathematical solutions similar to those used to solve magic squares mathematical puzzles.

Claim 6 (new). A large optically switched communication network as in Claim 1 and also comprising a plurality of detectors located at said area code nodes adapted to extract user data by interfering filtered data fiber signals with filtered reference fiber signals

Claim 7 (new) A large optically switched communication network as in Claim 1 wherein each of said at least 100 wavelength communication channels is adapted to provide up to 4 GHz of bandwidth for carrying user data.

Claim 8 (new). A large optically switched communication network as in claim 7 wherein said up to 4 GHz of bandwidth is about 2.4 GHz of bandwidth.

Claim 9 (new) A large optically switched communication network as in claim 1 wherein said network is adapted to provide between 10 and 100 MHz of bandwidth for each individual user.

Claim 10 (new). A large optically switched communication network as in claim 1 wherein said network is adapted to provide about 25 MHz of bandwidth for each individual user.

Claim 11 (new) A large optically switched communication network as in claim 1 wherein said plurality of narrowband optical reference frequency signals are at a standard dense wavelength division multiplexing frequency spacing of 50 GHz.

Claim 12 (new). A large optically switched communication network as in claim 11 wherein each of said plurality of narrowband optical reference frequency signals is associated with seven optical subfrequency signals defining six wavelength communication channels.

Claim 13 (new). A large optically switched communication network as in claim 12 wherein said seven optical subfrequency signals are at a frequency spacing of about 4 GHz.

Claim 14 (new). A large optically switched communication network as in claim 1 wherein said plurality of more than 20 area codes is a plurality of at least 250 area codes.

Claim 15 (new) A large optically switched communication network as in claim 1 wherein said plurality of more than 100 wavelength communication channels is a plurality of more than 300 wavelength communication channels.

Claim 16 (new) A large optically switched communication network as in claim 1 wherein at least a portion of said user data is carried over coaxial cable between users and an electro-optic modular associated with said area code nodes.

Claim 17 (new) A method of providing nation scale communications with individual channels allocated to individual communications links, said method comprising the steps of:

(A) providing a communication network comprising:

(1) a plurality of more than 20 area code nodes;

(2) a network of optical fibers;

(3) a plurality dense wavelength division multiplexing components for providing at least 100 wavelength communication channels through each optical fiber in said network of optical fibers;

(4) a plurality of processor controlled optical switches located at each of said area code nodes;

(5) a plurality of processors, said plurality of processors being programmed with a routing algorithm for controlling said optical switches to permit a plurality of single wavelength communication links through said network of optical fibers from each of said plurality of area code nodes to every other one of said area code nodes;

(6) at least one optical signal generator for generating a plurality of narrow band optical reference frequency signals and a plurality of optical subfrequency signals, said optical subfrequency signals defining each of

said at least 100 wavelength communication channels;

(7) a plurality of narrowband tunable filters located at the area code nodes to isolate selected wavelength communication channels from other wavelength communication channels; and

(8) a plurality of electro-optical modulators to modulate user data onto said network of optical fibers at wavelengths within selected wavelength communication channels; and

(B) utilizing said network to route each communication link from each area code node to every other area code node within the network without a change in wavelength and without optical-electrical optical conversion.

Claim 18 (new) A large optically switched communication network comprising:

(A) a plurality of more than 5 area code nodes;

(B) a network of optical fibers;

(C) a plurality of dense wavelength division multiplexing components for providing at least 20 wavelength communication channels through each optical fiber in said network of optical fibers;

(D) a plurality of processor controlled optical switches located at each of said area code nodes;

(E) a plurality of processors, said plurality of processors being programmed with a routing algorithm for controlling said optical switches to permit a plurality of single wavelength communication links through said network of optical fibers from each of said plurality of area code nodes to every other one of said area code nodes;

(F) at least one optical signal generator for generating a plurality of narrow band optical reference frequency signals;

(G) a plurality of narrowband tunable filters located at the area code nodes to isolate selected wavelength communication channels from other wavelength communication channels; and

(H) a plurality of electro-optical modulators to modulate user data onto said network of optical fibers at wavelengths within selected wavelength communication channels;

wherein each communication link from each area code node to every other area code node within the network is routed without a change in wavelength and without optical-electrical optical conversion.

Claim 19 (new). A large optically switched communication network as in Claim 18 and also comprising a plurality of detectors located at said area code nodes adapted to extract user data by interfering filtered data fiber signals with filtered reference fiber signals

Claim 20 (new) A large optically switched communication network as in Claim 18 wherein each of said at least 20 wavelength communication channels is adapted to provide up to 4 GHz of bandwidth for carrying user data.

Claim 21 (new). A large optically switched communication network as in claim 20 wherein said up to 4 GHz of bandwidth is about 2.4 GHz of bandwidth.

Claim 22 (new) A large optically switched communication network as in claim 18 wherein said network is adapted to provide between 10 and 100 MHz of bandwidth for each individual user.

Claim 23 (new). A large optically switched communication network as in claim 18 wherein said network is adapted to provide about 25 MHz of bandwidth for each individual user.

Claim 24 (new) A large optically switched communication network as in claim 18 wherein said plurality of narrowband optical reference frequency signals are at a standard dense wavelength division multiplexing frequency spacing of 50 GHz.

Claim 25 (new). A large optically switched communication network as in claim 24 wherein each of said plurality of narrowband optical reference frequency signals is associated with seven optical subfrequency signals defining six wavelength communication channels.

Claim 26 (new). A large optically switched communication network as in claim 25 wherein said seven optical subfrequency signals are at a frequency spacing of about 4 GHz.

Claim 27 (new) A large optically switched communication network as in claim 18 wherein said plurality of more than 20 wavelength communication channels is a plurality of more than 100 wavelength communication channels.

Claim 28 (new) A large optically switched communication network as in claim 18 wherein at least a portion of said user data is carried over coaxial cable between users and an electro-optic modular associated with said area code nodes.